TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 21, 2005

Mr. Gary Miller, Remedial Project Manager
U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: Gulfco Marine Maintenance Federal Superfund Site
Freeport, Brazoria County, Texas
Draft Screening-Level Ecological Risk Assessment (SLERA)

Dear Mr. Miller:

The Texas Commission on Environmental Quality (TCEQ) has completed review of the Draft Screening-Level Ecological Risk Assessment (SLERA) for the Gulfco Marine Maintenance Federal Superfund Site. The comments on this document reflect input from the TCEQ Technical Support Section, Larry Champagne and the Natural Resource Trustees (National Oceanic and Atmospheric Agency, U.S. Fish and Wildlife Service and the Texas General Land Office). Comments on the documents are presented below:

General Comments:

1. Given the very limited amount of sampling information from this site, the subsequent inability to develop a representative concentration and the high quantitation limits compared to the screening levels, this document is better suited as a work plan than as a SLERA. As presented below, it is premature to screen out any chemicals as chemicals of potential ecological concern (COPECs), without enough samples to adequately characterize the nature and extent of contamination.

   a) A thorough delineation of contamination in all media at the site should be completed before COPECs can be eliminated from the SLERA. For example, this SLERA states there is not enough information about these media (groundwater and surface water) to determine whether they may affect ecological receptors, but does not include groundwater or surface water sampling recommendations in its conclusions and does not plan to evaluate risk to receptors from these pathways. Groundwater data is available; however, the SLERA declines to discuss the data, stating only that the data

will be discussed in the RI/FS Work Plan for the site. This pathway and the other ecological pathways should be clarified before eliminating them from consideration. The potential for groundwater surface expression (aerial or subaqueous), noted within the report as relevant to the ecological perspective, remains plausible given the field-observed tidal connection to Oyster Creek and the Intracoastal Waterway. All potential contaminant transport mechanisms must be thoroughly evaluated to determine if a complete pathway exists prior to elimination from the SLERA.

b) Screening out COPECs based on data from the Screening Site Inspection Report (SSI) is not appropriate. The SLERA assumes the SSI data is "of adequate quantity and quality for the purposes of preparing the SLERA," but in fact the use of this data is contrary to the purpose of an SSI in the HRS process. The lack of SSI data suitability is exemplified by the SLERA's acknowledgment that "some of the detection limits, especially for PAHs, were higher than available levels when available". Consequently the use of SSI data does not support the Purpose and Scope's intent of providing a "conservative assessment". The TCEQ and U.S. Environmental Protection Agency (EPA) use the SSI as a screening mechanism to determine whether a site should be placed on the National Priorities List. The HRS and SSI are not risk assessment documents. Initial studies such as an SSI, which are used in the preparation of the HRS documentation, are not as detailed in scope as an RI/FS delineation of nature and extent of contamination. They are used as screening tools to identify those sites that represent the highest priority for further investigation and possible cleanup under the Superfund program. Their purpose is not to fully characterize the source and the extent of the contamination at a site or to define site risks to human health and the environment. This is accomplished during the RI/FS. Therefore the SLERA should rely heavily on data obtained during the RI and less on the screening data used to list the site.

c) Screening out COPECs based on background locations not approved for ecological and human health risk assessment purposes is inappropriate. According to EPA policy (2001), "comparison with background levels generally cannot be used to remove contaminants of concern owing to the need to fully characterize site risk. Consideration of background assumes that background contaminant levels have been properly determined." If background locations will be used in the RI/FS process to eliminate COPECs, the suitability of any background locations should be approved by EPA in conjunction with TCEQ and the Trustees and fully described in the SLERA.

d) Eliminating a COPEC simply because there is no EPA or TCEQ screening level is not appropriate. The SLERA repeatedly eliminated COPECs from all media simply

because of a lack of screening level. EPA Superfund Guidance (1997) states that "a contaminant should not be eliminated from the list of contaminants to be investigated only because toxicity information is lacking." The preparers of the risk assessment should seek out other sources of alternative screening levels, and if one cannot be found in peer reviewed literature, it should be fully documented in the SLERA and the resulting implications discussed in the uncertainty analysis.

2. Including a specific area use factor for ecological receptors at this point in the process is inappropriate. It clearly states in the EPA Guidance (1997) that "for the screening level exposure estimate, assume that the home range of one or more animals is entirely within the contaminated area, and thus the animals are exposed 100 percent of the time....species and site specific home range information would be needed later, in step 6...also evaluate the possibility that some species might actually focus their activities in contaminated areas of the site..."

Specific Comments:

1. Page 2, Section 1.1 Purpose and Scope; The SLERA incorrectly states "Since the TNRCC data were of adequate quantity and quality to list the Site on the National Priorities List, these data are assumed to be of adequate quantity and quality for the purpose of preparing the SLERA." See General Comment 1b.

2. Page 4, Section 2.1 Environmental Setting; The SLERA states "Based on field observations, the area north of Marlin Avenue is tidally connected to Oyster Creek and the Intracoastal Waterway through a natural swale (draining northeast) and stormwater ditches north of the Marlin Avenue roadbed" and "The portion of the site north of Marlin Avenue, excluding the capped impoundments and access roads, is considered estuarine wetland. " This suggests a potential groundwater-to-surface water nexus and as such is a potential contaminant pathway. See General Comment 1a.

3. Page 6, Section 2.1 Environmental Setting; The SLERA states that "because the area south of Marlin Avenue does not provide consistent, quality ecological habitat given its industrial use, soil data from this area were not evaluated for ecological impacts." It is unclear whether surface water, groundwater, or other data from this area are going to be evaluated for an ecological impact. An aerial photo of the south site shows almost half the area is not covered by buildings and concrete. In addition, visits to the site by USFWS personnel confirmed use of the site by birds and other wildlife. Therefore, the south site should be retained for further ecological evaluation.

4. P. 7, Section 2.2.1 Soil;
   a) Two samples are inadequate to establish background conditions. Also, the criteria used to select background locations should be provided.

   b) TNRCC (2001) provides screening-level benchmarks, not Protective Concentration Levels.

   c) Based on EPA policy (2001), screening-out chemicals from the SLERA based on a comparison to background is inappropriate.

   d) Texas statewide median values (TNRCC, 2001) for metals should be used as a screening tool. If it is determined that the representative concentrations of chromium, aluminum and iron do not exceed 30 mg/kg, 30000 mg/kg, and 1500 mg/kg, respectively, these metals could be eliminated from the SLERA.

   e) Butanone and methylene chloride were eliminated from consideration because they are common laboratory contaminants, in spite of the fact that their presence was not noted in blank analysis. The SLERA needs to discuss why these COPECs were found in all samples at low levels, but not found in the blank analysis.

5. P. 8, Section 2.2.2 Sediment;
   a) Please explain the following statement: "Site-specific data will be collected as part of the RI/FS to determine whether sediment in these areas should be considered marine or freshwater." Given limited resources, sampling should concentrate on delineating nature and extent of contamination. Verifying salinity is of low importance. The SLERA acknowledges "the surface water is brackish and is tidally influenced," therefore sediment contaminant levels should be compared to sediment criteria for marine environments.

   b) Three samples are inadequate to establish background conditions. Also, the criteria used to select background locations should be provided.

   c) Based on EPA policy (2001), screening-out chemicals from the SLERA based on a comparison to background is inappropriate.

   d) Please elaborate on the intended purpose of the five off-site samples.

   e) PAHs should be evaluated as mixtures and compared to screening-levels for total PAHs. Consequently, individual PAHs should not be eliminated because their concentrations are below their respective screening levels.

f) The SLERA states "It should be noted that the quantitation limits for many of the samples were higher than the screening criteria for many of the samples although J flagged (i.e., estimated) concentrations below the quantitation limits were reported by the laboratory and used in this evaluation." See General Comment 1b.

6. P. 9, Section 2.2.3 Surface Water and Groundwater; It is not acceptable to eliminate evaluation of the surface water and groundwater pathways based on a limited sampling effort (i.e., 2 surface water samples) with questionable detection limits. The SLERA should treat these pathways as complete until data from the RI clearly establishes they are not complete.

7. P. 10, Section 2.3 Identification of Preliminary COPECs; The SLERA states "Aluminum, calcium, iron, magnesium, potassium and sodium do not have ecological screening levels and were not evaluated. However, the concentrations reported in on-site soil samples for these metals were similar to background concentrations." This rationale is inadequate. See General Comment 1c. Elimination based on EPA listing and recognition as an essential nutrient should be stated if applied and done so consistently with EPA guidance. Also see previous comments on using Texas statewide median values for metals as a screening tool and evaluating PAHs as mixtures.

8. P. 10, Section 2.3 Identification of Preliminary COPECs; The SLERA states "Aluminum, barium, beryllium, calcium, cobalt, iron, magnesium, manganese, potassium, sodium and vanadium do not have ecological screening levels for sediment and cannot be evaluated. However, the concentrations detected in sediment near the Site in the Intracoastal Waterway and the ponds are similar to concentrations detected in sediment off-site and in background locations." This rationale is inadequate per General Comment 1c.

9. P. 13, Section 2.6.1 Terrestrial Assessment Endpoints; Reptilian (and amphibian) abundance, diversity and productivity should be identified as values to be preserved.

10. P. 16, Section 3.0 Screening-Level Exposure Analysis; Please provide references for the specified home ranges listed for all potential receptors, as there appear to be several inconsistencies. For example, the home range of a raptor (hawk) should be much greater than that of an omnivorous bird (robin). Also see Specific Comments 12 and 13.

11. P. 16, Section 3.1.1 Terrestrial Receptors; Reptiles should be identified as measurement receptors and evaluated, even if only qualitatively.

12. P. 17, Section 3.1.1 Terrestrial Receptors;

Mammalian Predators: It is recommended that the SLERA use a smaller-bodied receptor than a coyote. Given the size and location of the site, a skunk would be a more suitable mammalian receptor.

Avian Omnivores: The reported home range for the American Robin is grossly inaccurate. The SLERA reports a home range of approximately 200 acres, while the EPA Wildlife Exposure Factors Handbook lists it as 0.37 - 2 acres. The revised SLERA should use the correct home range.

13. P. 18-19, Section 3.1.2, Estuarine Wetland and Aquatic Receptors;
Benthos: What is the purpose of specifying species of benthic invertebrates? Unless these species are to be later used in sediment toxicity tests, the benthos should be evaluated as a community.

Carnivorous Fish: Because many of the COPECs (PAHs, PCBs, metals) will partition into the sediments and because its diet consists of a higher percentage of benthic organisms, the black drum is preferred over the red drum as the representative for this guild. Also, a very small AUF for both the red drum and the spotted seatrout is used, rationalizing that both species tend to inhabit open bay waters rather than shallow marshes and grass beds. While this may be true for adults, juveniles will prefer shallow marshes and grass beds to open bay waters. Not only are juvenile fish more likely to be affected by contamination in their diet, but as stated above, they are more likely to remain in the contaminated area longer than adults. The AUF should take into consideration the most sensitive life stage present in the area. Therefore, an AUF of 1% is not appropriate.

Avian Predators: Shorebirds (e.g., sandpipers) should be evaluated as representative receptors. Although it is stated in this SLERA that there is not much shoreline habitat, it is also stated that shorebirds have made homes in the vertical structures on-site, so they are obviously foraging there. It is also suggested that a smaller body weight heron, such as a green heron, be used over the great blue. Besides, the reported home range for the great blue is grossly inaccurate. The SLERA reports a home range of over 70,000 acres; whereas, the EPA Handbook lists a feeding territory of up to 20.7 acres.

14. P. 21, Section 3.2 Screening-Level Exposure Estimates; It is inappropriate to assume that there will be no incidental soil ingestion by the coyote and the red-tailed hawk. A small amount (e.g., 2%) should be assumed. It is also inappropriate to assume that drum (red and black) and herons will not be exposed through incidental sediment ingestion. Please revise the SLERA accordingly.

15. P. 26, Section 5.4 Scientific Management Decision Point; In addition to screening-out COPECs prematurely as discussed in previous comments, the SMDP compounds this problem by recommending that new samples not be analyzed for the excluded COPECs. We strongly disagree that future data be limited to analysis for only certain COPECs.

References:

Texas Natural Resource Conservation Commission (TNRCC). 2001. *Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas.* RG-263 (revised). December.

United States Environmental Protection Agency (EPA). 1993. *Wildlife Exposure Factors Handbook, Volume I of II.* Office of Research and Development. EPA/600/R-93/187a.

United States Environmental Protection Agency (EPA). 1997. *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments. Interim Final.* Solid Waste and Emergency Response. OSWER 9285.7-25. EPA 540-R-97-006.

United States Environmental Protection Agency (EPA). 2001. *Ecological Update. The Role of Screening-Level Risk Assessments in Refining Contaminants of Concern in Baseline Ecological Risk Assessments.* Office of Solid Waste and Emergency Response. Publication #9345.0-14. EPA 540/F-01/014. June.

If you have any questions please contact me at (512) 239-6368.

Sincerely,

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